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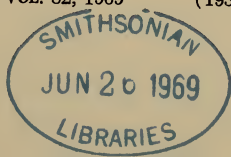
A NEW CRAWFISH OF THE GENUS *HOBBSSEUS*
FROM MISSISSIPPI (DECAPODA, ASTACIDAE)

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The species described herein is assigned to the genus *Hobbseus* of the crawfish subfamily Cambarinae. The members of this newly designated genus (Fitzpatrick and Payne, 1968: 15) formerly constituted the *Cristatus* Section of the genus *Cambarus* (Hobbs, 1955: 95). Other described species in the genus include *H. cristatus* (Hobbs, *ibid.*) from the western Tombigbee and Pascagoula River watersheds in Lowndes, Noxubee, Kemper and Lauderdale Counties, Mississippi; *H. prominens* (Hobbs, 1966: 110) from the eastern Tombigbee River watershed in Sumter County, Alabama; *H. valleculus* (Fitzpatrick, 1967: 163) from the upper Pearl River watershed in Choctaw County, Mississippi; and *H. orconectoides* Fitzpatrick and Payne (1968: 17) from the western Tombigbee River watershed in Oktibbeha County, Mississippi. The present species has been collected from five localities in Winston County, and one locality in Neshoba County, Mississippi, all from the Pearl River watershed.

***Hobbseus attenuatus* new species**

Diagnosis: Body pigmented; eyes well developed and pigmented; rostrum ovate and subspatulate, without marginal spines or tubercles. Areola 5.3-7.5 times longer than broad and constituting 30.0-34.2 percent of total length of carapace. Suborbital angle almost obsolete. Post-orbital ridges without spines. Antennal scale slightly less than one-half as broad as long. Chela with cristiform row of tubercles on mesial margin of palm. First pleopod of first form male with central projection directed at approximately 90 degree angle to main shaft of appendage;



mesial process extremely slender, directed at 90 degree angle, extending caudad approximately 40 percent of its length beyond tip of central projection. Pleopods symmetrical (Fig. 3). Sternum of first form male with conspicuous, ventrally projecting, setiferous processes at bases of third and fourth pereopods. Annulus ventralis freely movable.

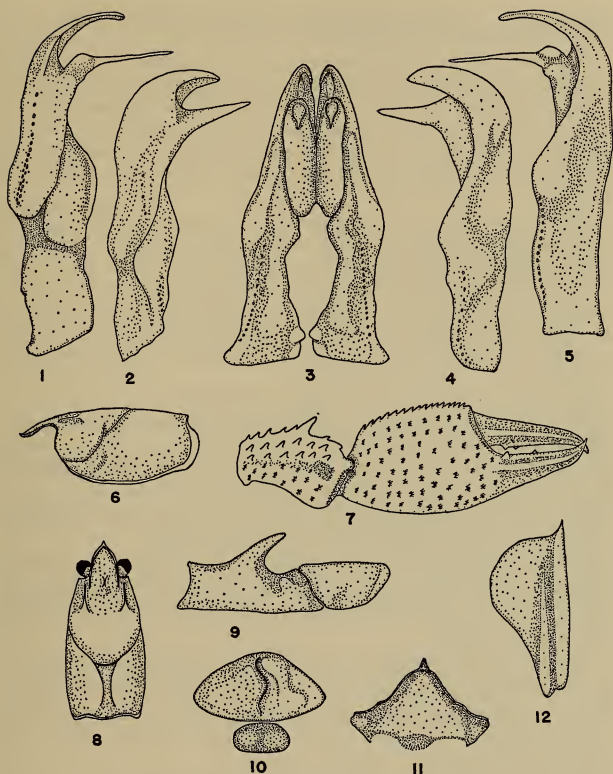
Holotypic male, Form I: Body subovate, compressed laterally. Abdomen narrower than cephalothorax (7.5 and 8.5 mm in widest parts, respectively). Width of carapace less than depth at levels of greatest dimension (8.5–9.0 mm). Areola (Fig. 8) moderately narrow (6.1 times longer than wide), with row of punctations mesial to each branchio-cardiac groove and medial longitudinal shallow row in cephalic portion. Length of areola 31.3 percent of length of carapace. Rostrum relatively narrow (width 70 percent of length), subspatulate, with small up-turned acumen; margins slightly elevated; no lateral spines present; tip of rostrum reaching tip of distal end of peduncle of antennule; upper surface only slightly depressed, deepest in caudal portion of rostrum (Fig. 8); subrostral ridges weak but present.

Postorbital ridges well developed; cephalic ends lacking tubercles or spines; suborbital angle, strongly obtuse, almost obsolete. Branchiostegal spine small but acute. Cervical spines and tubercles absent. Carapace punctate dorsally and cephalolaterally, punctations particularly conspicuous in area immediately mesial to postorbital ridges; lateral portions of branchiostegites granulate. Abdomen longer than carapace (20.5 and 19.5 mm). Cephalic section of telson with two acute spines in each caudolateral corner.

Epistome (Fig. 11) subtriangular with elevated margins, lateral auricles, and small cephalomedian extension. Antennules of usual form with small spine on lower surface of basal segment. Antennae extend caudad to fourth abdominal segment. Antennal scale (Fig. 12) broadest distal to midlength, terminating in strong spine.

Chela (Fig. 7) with broad palm, slightly inflated, length of inner margin of palm slightly greater than width (6.0–5.8 mm); dorsal surface of palm with numerous setiferous squamous tubercles; lower surface of palm punctate; inner margin with cristiform row of 16 tubercles; fingers not gaping. Upper and lower surfaces of both fingers with submedian ridge flanked by setiferous punctations, ridges on upper surfaces more prominent; opposable margin of dactyl with 2 subequal tubercles along proximal one-half, distalmost largest, with crowded minute denticles along distal one-half; opposable margin of immovable finger with 2 subequal tubercles along proximal one-half and crowded minute denticles along distal one-half.

Carpus of cheliped longer than broad; grooved dorsally, with scattered setiferous punctations, inner margin with numerous cristiform tubercles and one strong acute spine near distal end; lower surface with strong acute spine on distolateral margin. Merus with row of 13 small acute spines along entire lower mesial margin; lower lateral margin with irregularly spaced row of 10 small acute spines along proximal two-



FIGURES 1-12. *Hobbseus attenuatus*. (1) mesial view of first pleopod of holotype; (2) mesial view of first pleopod of morphotype; (3) caudal view of first pleopods of holotype; (4) lateral view of first pleopod of morphotype; (5) lateral view of first pleopod of holotype; (6) lateral view of carapace of holotype; (7) carpus and chela of holotype; (8) dorsal view of carapace of holotype; (9) ischiopodite and basipodite of third pereopod of holotype; (10) annulus ventralis and sternal plate of allotype; (11) epistome of holotype; (12) antennal scale of holotype (setae omitted from all figures).

thirds, and four larger spines distally. Mesial margin of ischiopodite with row of six small acute spines.

Ischiopodite of third pereopod (Fig. 9) with strong simple hooks, extending proximally well beyond bases of ischiopodites. Coxae of fourth pereopods without conspicuous prominence, those of fifth with ventro-mesial tubercle and more conspicuous one located cephalodorsal to the first and in contact with gonopod. Sternal projections at bases of coxopodites heavily setiferous and conspicuous, forming deep trough for gonopods.

First pleopod (Figs. 1, 3, 5) reaching to coxopodites of third pereopods when abdomen flexed, lying deeply between ventrally projecting sternal projections; distal portion terminating in two distinct parts; central projection corneous, tip rounded, bent caudally at angle of approximately 90 degrees to main shaft of appendage; mesial process arising from conspicuous knob near base, non-corneous, attenuate and parallel to central projection; mesial process conspicuously longer than central projection.

Morphotypic male, Form II: Differs from holotype in following respects: tip of rostrum rounded, without tubercular acumen; areola proportionally narrower (6.5 times longer than wide); punctations in areola less conspicuous; tubercles along opposable margins of both fingers less prominent; usual differences occur in secondary sexual characters: reduced and blunter stylets on gonopod, reduced hooks on third pereopods and reduced prominences on coxae of fifth pereopods.

First pleopod (Figs. 2, 4) not reaching base of third pereopods, both processes non-corneous, less attenuate; directed at angles slightly less than in holotype; juvenile suture near base prominent; mesial process proportionally shorter.

Allotypic female: Rostrum as in holotype with distinct tuberculate acumen. Differs from holotype in following respects: Areola proportionally wider (5.5 times longer than wide); epistome with less distinct auricles; cristiform tubercles on inner margin of palm less distinct and fewer in number (14).

Annulus ventralis (Fig. 10) freely movable; median S-shaped sinus originating in cephalic depression slightly sinistral to median line; secondary depression originating from cephalic one-third of sinus extending caudosinistrally between two elevations. Sternal plate immediately caudal to annulus with median depression bordered by slight elevations.

Measurements: as follows (in mm):

	Holotype	Allotype	Morphotype
Carapace			
Length	19.5	16.2	16.0
Width	8.5	7.5	7.5
Height	9.0	8.0	8.0

	Holotype	Allotype	Morphotype
Areola			
Length	6.1	5.5	5.2
Width	1.0	1.0	0.8
Rostrum			
Length	5.0	4.1	4.0
Width	3.5	3.1	3.1
Antennal scale			
Length	4.2	3.5	3.5
Width	2.0	1.7	1.7
Chela			
Length (lateral mar.)	12.5	7.0	8.9
Palm length (mesial mar.)	6.0	3.8	4.3
Palm width	5.8	3.0	3.8
Dactyl length	6.9	4.2	4.9

Type locality: Roadside ditch adjacent to Noxapater Creek, on gravel road two miles north of State Route 395, six miles west of Noxapater, Winston County, Mississippi (R 11E, T 14N). The ditch contains water in all but severe drought conditions and has abundant submergent and emergent aquatic vegetation. Dominant trees in the adjacent swampy area were *Liquidamber*, *Pinus*, *Acer*, *Liriodendron*. All specimens were captured with dipnets from open water. Other crawfishes associated with *Hobbseus attenuatus* in the ditch were *Procambarus a. acutus* (Girard, 1852:91), *P. planirostris* Penn (1953:71), *Cambarus hedgpethi* Hobbs (1948:224). At other localities the associates were *P. a. acutus* and *C. d. diogenes* Girard (1852:88).

Disposition of types: The holotype, allotype, and morphotype are deposited in the United States National Museum (Nos. 129535, 129536, and 129537, respectively). Paratypic series are in the United States National Museum (1♂ I, 2♂♂ II, 2♀♀), the Museum of Comparative Zoology (1♂ I, 1♂ II, 1♀), Tulane University Invertebrate Collection (14♂♂ I, 4♂♂ II, 26♀♀), and the Mississippi State University Collection (1♂ I, 2♂♂ II, 2♀♀). Other paratypes (2♂♂ I, 13♂♂ II, 30♀♀, 2♂♂ juv., 3♀♀ juv.) are retained in my personal collection.

Ecological and life history notes: Presumably *H. attenuatus*, like other members of the genus, is a secondary burrower. All specimens came from temporary aquatic situations. Breeding form males have been collected in June (17 total), August (2) and December (1). Medium sized juveniles were collected in late December.

Color notes: Primary background color of carapace olive-brown with darker flecks of brown on dorsal surface becoming larger blotches on lateral surfaces. Base color of abdomen medium brown tinged with pink, pink tinge becoming more pronounced laterally and caudally. Mid-dorsal area darker brown, giving appearance of poorly defined stripe

Each abdominal segment with rectangular patch of dark brown along cephalic edge of either side of mid-dorsal line, giving overall appearance of pair of dark brown stripes. Below rectangular patches is lightly marked pinkish-brown stripe of approximately 1.0 mm diameter, bordered laterally by well defined stripe of dark brown. Dorsal surfaces of the chela pinkish-brown with olive-brown blotches.

Variations: Variations in number and size of tubercles on inner margin of palm were observed, the range being 13–17, males usually having a larger number than females. Several specimens were noticed to be without an acumen, in addition to the morphotypic male. The areola varies in width from 5.3–7.5 times longer than broad.

Relationships: *H. attenuatus* is most closely related to *H. cristatus* (Hobbs, 1955:95). It is similar to the latter in the overall appearance and degree of flexion of the pleopods. Closer examination of the pleopods, however, reveals characteristic differences. The first pleopod of *H. cristatus* shows an extremely broad, flattened mesial process, less flexion of both mesial process and central projection, and a sharp tipped central projection. The annuli ventrales of the two species are quite dissimilar in sculpturing and curvature of the medial sinus. The epistome most closely resembles *H. valleculus* (Fitzpatrick, 1967:163); the annulus ventralis is similar in many respects to *H. orconectoides* Fitzpatrick and Payne (1968:17). The most distinguishing feature of the new species, however, is the extremely long attenuate stylets of the first form male gonopod, together with the deep trough formed by the sternal projections to house the attenuate pleopods.

Etymology: The name of this species is taken from the Latin *attenuo*, to make thin; it is so named because of the extremely thin mesial process of the first pleopod of the first form male.

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